ISSN 1819-7140, Russian Journal of Pacific Geology, 2018, Vol. 12, No. 1, pp. 1–19. © Pleiades Publishing, Ltd., 2018.
Original Russian Text © G.V. Kotlyar, S.K. Pukhonto, V.I. Burago, 2018, published in Tikhookeanskaya Geologiya, 2018, Vol. 37, No. 1, pp. 3–21.

Interregional Correlation of the Permian Continental and Marine Deposits of Northeastern Russia, Southern Far East, Siberia, and Pechora Cisurals

G. V. Kotlyar[a, b, *], S. K. Pukhonto[c], and V. I. Burago[d†]

[a] *Federal State Budgetary Institution Karpinsky Russian Geological Research Institute, St. Petersburg, 199106 Russia*
[b] *Kazan (Volga Region) Federal University, Kazan, 420008 Russia*
[c] *Vernadsky State Geological Museum, Russian Academy of Sciences, Moscow 125009 Russia*
[d] *Open Joint-Stock Company Primorgeologiya, Vladivostok, 690091 Russia*
**e-mail: Galina_Kotlyar@vsegei.ru*

Received August 1, 2017

Abstract—Correlation of the Permian continental and marine deposits of Northeastern Russia, the southern Far East, Siberia, and the Pechora Cisurals is carried out. A consistent zonal succession of brachiopods, marine bivalves, and ammonoids is revealed and linked with the macroflora in the boundary deposits of the Cisuralian/Biarmian Series of the Boreal Superrealm. As a result, analogues of the Solikamian, Irenskii, Filippovskii, and Saraninian Horizons of the Kungurian Stage are established in the main coal basins and marine sequences of Northeastern Russia and the southern Far East. The correlative floristic horizon, stretching from the east of the East European Platform to the Pechora Cisurals, Pai-Khoy, Siberia, the Kuznetsk Basin, Northeastern Russia, and the southern Far East is established. The unity of the Sheshmian–Kazanian nonmarine floral assemblages and nonmarine bivalves, which correspond to the marine biota of Kazanian age, and their distinction from Kungurian assemblages are established. The Kungurian–Kazanian boundary is traced in marine and continental deposits within the entire Boreal Superrealm. The invalidity of the Ufimian Stage is established. The Kazanian Stage corresponds to the Roadian Stage of the International Chronostratigraphic Chart; however, the lower boundary of the Kazanian Stage is not defined precisely and can be conventionally considered isochronous to the boundary of the Roadian Stage.

Keywords: interregional correlation of continental and marine deposits, Boreal Superrealm, boundary of Cisurals and Biarmian Series, Northeastern Russia, southern Far East, Siberia, Pechora Cisurals

DOI: 10.1134/S1819714018010037

INTRODUCTION

Correlation of continental and marine deposits is a priority task for stratigraphy of the Permian System. The International Subcommission on Permian Stratigraphy attracted the interest of researchers from around the world to the matter. This is of particular concern for Russia, where continental deposits are extremely widespread and correlation with the stages of the General Stratigraphic Scale used in Russia is very difficult and at times completely impossible. Even greater challenges arise when stage boundaries of the International Chronostratigraphic Scale are traced in the continental facies of Russia. Multidisciplinary methods of correlation, including correlation of continental deposits with marine sequences, which have been thoroughly identified and clearly dated by biozonal subdivisions, are used to achieve this goal. The selective correlation of nonmarine deposits with the marine sequences of Northeastern Russia is largely obsolete. Since the completion of this work, the new, updated General Stratigraphic Scale has been adopted. The new scale is more thoroughly divided into three series, and the stages were newly subdivided [38].

Fundamentally new materials on the marine deposits of Northeastern Russia [43, 51, 56] and the southern Far East [58] were obtained as a result of the Third Interdepartmental Regional Stratigraphic Conference on the Precambrian, Paleozoic, and Mesozoic of Northeastern Russia, held in 2002, and on the basis of more recent, previously published data. These materials made it possible to approach a more detailed biozonal level of the Permian sequence division, to distinguish correlative levels, to outline the positions of certain stage boundaries of the General Stratigraphic Scale, and to correlate them with the stage boundaries of the International Chronostratigraphic Chart.

† Deceased.